इंटरनेट मानक

Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

"जानने का अधिकार, जीने का अधिकार"
Mazdoor Kisan Shakti Sangathan
"The Right to Information, The Right to Live"

"पुराने को छोड नये के तरफ"
Jawaharlal Nehru
"Step Out From the Old to the New"

IS 1885-53 (1980): Electrotechnical Vocabulary - Part LIII : Mica [ETD 1: Basic Electrotechnical Standards]

"ज्ञान से एक नये भारत का निर्माण"
Satyanarayan Gangaram Pitroda
"Invent a New India Using Knowledge"

Act Number 22 of 2005
The Indian Parliament
RIGHT TO INFORMATION

Made Available By
Public.Resource.Org

"ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है"
Bhartṛhari—Nītiśatakam
"Knowledge is such a treasure which cannot be stolen"

BLANK PAGE

BRUTUM FULMEN
IGNORANTIA JURIS NON EXCUSAT
PROTECTED BY COPYRIGHT

Reaffirmed 1981

IS : 1885 (Part LIII) - 1980
(Superseding IS : 1174-1957)

(Reaffirmed 2002)

Indian Standard
ELECTROTECHNICAL VOCABULARY
PART LIII MICA

UDC 621·315·613·1 : 001·4

© *Copyright* 1980

INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Price [redacted] Gr 2

December 1980

IS : 1885 (Part LIII) - 1980
(Superseding 1: 1174-1957)

Indian Standard
ELECTROTECHNICAL VOCABULARY
PART LIII MICA

Electrotechnical Standards Sectional Committee, ETDC 1

Chairman	***Representing***
SHRI J. S. ZAVERI	Bharat Bijlee Ltd, Bombay
Members	
SHRI H. V. BADRINATH	Wireless Planning and Coordination Wing (Ministry of Communications), New Delhi
SHRI V. K. BATRA	National Physical Laboratory (CSIR), New Delhi
SHRI T. L. BHATIA	Indian Posts and Telegraphs Department (Ministry of Communications), New Delhi
SHRI J. M. NEOGY (*Alternate*)	
SHRI v. s. BHATIA	Low Voltage Switchgear and Controlgear Sectional Committee, ETDC 57, ISI
BRIG N. DAYAL	Ministry of Defence (DGI)
COL K. V. KUDVA (*Alternate*)	
DIRECTOR (TED)	central Electricity Authority (Department of Power) (Ministry of Energy), New Delhi
DEPUTY DIRECTOR (TED) (*Alternate*)	
SHRI M. L. DONGRE	Power Cables Sectional Committee, ETDC 59, ISI
SHRI R. D. JAIN	Conductors and Accessories for Overhead Lines Sectional Committee, ETDC 60, ISI
SHRI s. K. KASLIWAL	Bharat Heavy Electricals Ltd, Bhopal
SHRI PRAKASH SINGH (*Alternate*)	
SHRI S. K. MUKHERJEE	National Test House, Calcutta
SHRI B. MUKHOPADHYAY (*Alternate*)	
PROF R. C. NARAYANAN	General Nomenclature and Symbols Subcommittee, ETDC 1 : 5, ISI
SHRI D. V. NARKE	Transformers Sectional Committee, ETDC 16, ISI
SHRI N. NATH	Relays Sectional Committee, ETDC 35, ISI
SHRI H. M. PAI	High Voltage Switchgear and Controlgear Sectional Committee, ETDC 58, ISI
SHRI D. N. PURANDARE	Electrical Wiring Accessories, Sectional Committee, ETDC 44, ISI
SHRI s. G. RAMACHANDRA	Rotating Machinery Sectional Committee, ETDC 15, ISI
SHRI v. L. SASTRY	Electronics and Radar Development Establishment (Ministry of Defence), Bangalore
SHRI K. V. BHAT (*Alternate*)	
DR S. M. SEN	Institution of Engineers (India), Calcutta
DR H. V. K. UDUPA	Secondary Cells and Batteries Sectional Committee, ETDC 11, ISI

(*Continued on page* 2)

© *Copyright* 1980
INDIAN STANDARDS INSTITUTION
This publication is protected under the *Indian Copyright Act* (XIV of 1957) and reproduction in whole or in part by any means except with written permission of the publisher shall be deemed to be an infringement of copyright under the said Act.

(*Continued from page* 1)

Members	*Representing*
Shri H. N. Venkobha Rao	Central Electrochemical Research Institute (CSIR), Karaikudi
Shri Y. Mahadeva Iyer (*Alternate*)	
Shri M. P. Wagh	Indian Electrical Manufacturers' Association, Bombay
Shri S. D. Medhekar (*Alternate*)	
Shri S. P. Sachdev, Director (Elec tech) (*Secretary*)	Director General, ISI (*Ex-officio Member*)

Mica Sectional Committee, ETDC 9

Chairman	
Shri S. N. Puri	Geological Survey of India, Calcutta

Members	
Shri S. P. Bhadani	Chatturam Horilram Pvt Ltd, P. 0. Jhumri-Telaiya (Bihar)
Shri Gopi Krishna Bhadani (*Alternate*)	
Shri Basudev Bharatia	Bihar Mica Exporters Association. Giridih
Shri N. S. Chakraborty (*Alternate*)	
Chairman, Bihar Mica Syndicate	Government of Bihar
Controller	Indian Bureau of Mines, Nagpur
Shri M. Mukherjee (Alternate)	
Shri Y. N. Dave	Department of Mines and Geology, Government of Rajasthan, Jaipur
Shri R. S. Sharma (Alternate)	
Shri G. C. De	Export Inspection Council of India, Calcutta
Shri P. P. Saxena (*Alternate*)	
Shri D. Gupta	Mica Trading Corporation of India Ltd, Patna
Shri P. Kota Reddy	Madras Mica Association, Gudur (Andhra Pradesh)
Shri C. V. Krishnaiah (*Alternate*)	
Shri Shankar Prasad Mansinghka	Seth Pusalal Mansinghka Pvt Ltd, Bhilwara
Shri N. S. N. Murthy	Bharat Heavy Electricals Ltd. Hyderabad
Shri M. V. Dalal (*Alternate*)	
Shri B. K. Murthy (*Alternate*)	
Shri Surya Prakash Nathany	In personal capacity (*Mica Exporter, Bhilwara*)
Shri R. L. Rajgarhia	Messrs C. M. Rajgarhia, Giridih (Bihar)
Shri S. K. Rajgarhia (*Alternate*)	
Shri A. Syamasundara Reddy	Universal Enterprises, Gudur (Andhra Pradesh)
Shri S. B. Roy	Central Glass and Ceramic Research Institute (CSIR), Calcutta
Dr S. Mal (Ali (*Alternate*)	
Shri Kisto Kumar Saha	Peak Electronics Pvt Ltd, Calcutta
Shri A. K. Chowdhury (*Alternate*)	
Shri Bishwajit Samonta	Koderma Mica Mining Association, Jhumri-Telaiya (Bihar)
Shri Umesh Chandra Agrawala (*Alternate*)	
Shri S. R. Sengupta	Ranjan Mica Industries, Calcutta
Shri U. S. Verma	National Test House, Calcutta
Shri P. C. Pradhan (*Alternate*)	
Shri Om Wadhwa	J. V. Electronics Ltd, New Delhi
Shri S. P. Sachdev, Director (Elec tech) (*Secretary*)	Director General, ISI (*Ex-officio Member*)

Indian Standard

ELECTROTECHNICAL VOCABULARY

PART LIII MICA

0. FOREWORD

0.1 This Indian Standard (Part **LIII**) was adopted by the Indian Standards Institution on 4 July 1980, after the draft finalized by the Electrotechnical Standards Sectional Committee in consultation with the Mica Sectional Committee had been approved by the Electrotechnical Division Council.

0.2 The definitions contained in this standard have been drawn up with the object of striking a correct balance between absolute precision and simplicity. The principal object of this 'standard (Part LIII) is to provide definitions which are sufficiently clear so that each term is understood with the same meaning by all concerned. It may sometimes be felt that the definitions are not sufficiently precise, do not include all cases, do not take account of certain exceptions or are not identical with those which may be found in other publications designed with other objects and for other readers. Such differences are inevitable and should be accepted in the interest of uniformity and clarity.

0.3 This standard (Part LIII) supers&s IS : 1174-1957*.

0.4 Muscovite and phlogopite mica differ in composition, colour and a few other physical properties. While muscovite mica (also known as potash mica) is a mineral of potassium alumino-silicate, phlogopite mica (also known as magnesia or amber mica) consists of potassium magnesium alumina-silicates. Colourwise, muscovite mica varies between green and ruby and phlogopite mica ranges. from pale yellowish to blackish brown.

0.5 The quality of muscovite mica is judged by the degree of freedom from imperfections which are found in natural mica. These imperfections arise from various causes; some appear as structural defects, while others appear as stain resulting from inclusions of various foreign materials; principal among them are the inclusions of air and mineral matter (see-3.11). Any system of grading and classification of muscovite mica should be based on a clear understanding of the terms which are used in miea industry and trade to describe these imperfections.

---

*Definitions of mica terms.

0.6 Taking into consideration the views of producers, consumers and technologists, the Sectional Committee responsible for the preparation of this standard felt that it should be related to the trade practices followed in the country in this field. Furthermore, due weightage had to be given to the need for international co-ordination among standards prevailing in different countries of the world, and to include terms pertaining to both the muscovite mica and phlogopite mica in this standard.

0.7 Requirements in respect of the minimum thickness of block mica appear to be different in different consuming countries. For this reason, in defining block mica, the minimum thickness has been stated to be either 0·20 mm or 0·18 mm as agreed between the buyer and the seller (see 2.6). Producer countries are known to be prepared to supply block mica to either of these limits.

0.8 The minimum number of splittings in a book should not be less than 8, and all such books shall contain sound splittings. A maximum tolerance of 10 percent of books, by mass, containing not less than 6 splittings shall be permitted (see 2.9).

0.9 While preparing this standard, assistance has been derived from the following:

ISO 2185-1972 Muscovite mica blocks, thins and films — Visual classification. International Organization for Standardization.

ASTM D 351-1971 Specification for natural muscovite block mica and thins based on visual quality. American Society for Testing and Materials.

---

1. SCOPE

1.1 This standard (Part LIII) covers definitions of terms applicable to muscovite and phlogopite mica.

2. TERMS RELATING TO GRADING

2.1 Crude Mica -The crude crystals or books as extracted from the mine.

2.2 **Cobbing** — The process of removing dirt and rock from crude mica.

2.3 **Rifting** -The process of splitting cobbed mica into sheets of suitable thickness.

2.4 Trimming or Dressing — The process of removing major flaws from rifted mica. Trimming may be accomplished with sickle or knife and the mica is then named after the implement used, sickle-trimmed mica and knife-trimmed mica.

2.5 Sickle-Trimmed Mica — Crude mica cobbed, rifted and trimmed with a sickle to eliminate major flaws, and left with irregular outline and bevelled edge.

2.6 Blocks — Knife-trimmed mica of a specified minimum thickness, which may be, with a maximum tolerance of 5 percent (by mass).

NOTE — As agreed between the buyer and the seller, the thickness and corresponding tolerance would be either of the following:

Thickness	*Tolerance*
mm	mm
0·20	— 0·02
0·18	— 0·03

2.7 Thins — Knife-trimmed mica in any specified thickness between 0·05 mm and 0·18 mm.

2.8 Commercial Forms of Mica — Mica known as blocks, thins, condenser films and splittings.

2.9 Splittings — Laminae split from blocks or thins, the thickness of ten of which taken together does not exceed 0·28 mm. Splittings may be presented in two forms:

a) *Book-Form Splittings* — Splittings arranged and supplied in the form of individual books, each book comprising splittings obtained from the same piece of; block mica or thins. Book-form splittings generally dusted with fine mica powder. The minimum number of splittings in a book should not be less than 8, and all such books should contain only sound splittings. A maximum tolerance of 10 percent of books by mass; containing not less than 6 splittings, should be permitted.

b) *Loose-Pack Splittings* — Splittings of heterogeneous shape, not arranged in any regular order but packed loosely in bulk form. Loose-pack splittings may or may not be dusted.

2.10 Half-Trimmed Mica — Mica trimmed on two sides, with at least two-thirds of the pieces trimmed on two adjacent sides, the balance of the pieces trimmed on the two parallel long sides, and with no cracks extending into the usable area by which the piece is graded. The foregoing does not apply to sixes 6 and 5½ (or 06 and 16) on which at least one of any two trimmed sides must be free of cracks, and no cracks may extend into the area by which the piece is graded. The mica shall be capable of permitting the cutting of rectangles of accepted size and quality with a weight loss not exceeding 60 percent of the tot81 inspection sample, 2.11 **Full-Trimmed Mica** — Mica trimmed on all sides with all cracks, reeves, and cross-grains removed:

2.12 **Knife-Dressed Mica** — 'Crude mica dressed or trimmed with knife or sickle-dressed or sickle-trimmed mica further refined with a knife to eliminate interior defects and also such defects as have been overlooked by sickle-cutters.

2.13 **Unmanufactured Mica** — The commercial form of mica known as blocks, thins, films and splittings, as described.

2.14 **Film** — Full-trimmed mica of specified quality, split to any range of specified thickness between 0·020 to 0'100 mm.

3. TERMS RELATING TO VISUAL CLASSIFICATION

3.1 **'A'** — A series of rulings or striations intersecting at an angle of about 60”.

3.2 **Air Chain** — A series of air inclusions or bubbles in the form of a chain or streak.

3.3 **Buckle** — One or more large depression(s) and elevation(s).

3.4 ***Cracks*** — Irregular fractures within the crystal that may be natural or may arise from blasting, rough handling, etc.

3.5 **Cross-Grains** or **Jatahi** or **Reeves** — Tangled laminations giving imperfect cleavage, which results in tears or breaks during splitting.

3.6 **Crystallographic Discolouration** — Appears as bands of lighter or darker shades of the basic colour of the block of mica. Such bands are generally parallel to the crystallographic faces of the crystal from which the block was separated.

3.7 **Hair-Cracks** or **Hairline Cracks** — Minute, irregular cracks that are barely noticeable until mica is split into films, resulting in production of torn films.

3.8 **Hard. Mica** — Micathat, when slightly flexed or distorted with thumb pressure, generally do not show any tendency to delaminate. Such mica, in thick pieces, will give an almost metallic sound when tapped or dropped on a hard surface (see *also* 3.16).

3.9 **Herring-Bones** — Numerous rulings that intersect to form a series of 'V', the legs markings angles of 120° and joining at the apex to produce a herringbone, horsetail, or feather structure.

3.10 **Hole** — A perforation, sometimes minute, through the laminae.

3.11 Inclusion — Inter-cleavage penetration of a foreign material either of mineral origin or of gas (for example, air inclusion, mineral inclusion).

NOTE 1 -Air inclusions appear as silvery bubbla when viewed by reflected light, and greyish spots when viewed by transmitted fight.

NOTE 2 — The so-called 'vegetable' inclusions are of Pale yellow, brown green, or clay colour when viewed by transmitted light.

NOTE 3 — Mineral inclusions arc distinctly black, red, brown, or green when viewed by transmitted light.

3.12 Pinholes or Pinpits — Minute holes caused by crystals of hard minerals, such as garnet, quartz or beryl.

3.13 Ribboned or Ruled Mica — Mica that breaks into narrow strips between parallel fractures.

3.14 Ribs or Ridges — Crenulations in the form of steps.

3.15 Ripple — Multiple short waves.

3.16 Soft Mica — Mica that, when slightly flexed or distorted with thumb pressure, generally shows a tendency to delaminate. Such mica, in thick pieces, generally gives a dull sound when tapped or dropped on a hard surface. (see *also* 3.8).

3.17 Stains — Stains arise from foreign materials, resulting in a partial or total loss of transparency. 'They may be in the form of specks or patches of appreciable area — for example, slight stain, vegetable stain, day stain, black stain, red stain, black speckled, light dot or spot, black, red or 'green dot or spot, black or red lines/bars inclusive of cross hatchings, etc.

NOTE 1 — The so-called 'vegetable' stains are of pale yellow, brown, green, or clay colour when viewed by transmitted light.

NOTE 2 — Mineral stains are distinctly black, red, brown, or green when viewed by transmitted light.

NOTE 3 — No data are available to support the impression that the 'vegetable' stains arc organic in nature. Tests canducted indicate that they are finely dispersed particles of the various iron oxides. The difference between these stains and the so-called mineral stains is probably only in their concentrations, density, or type of oxide.

3.18 Stones and Stone Holes — Small embedded crystals or holes resulting from them.

$19 Tangle Sheet — A piece of mica that splits well in places but tears in others, producing a large percentage of partial films. Sometimes the term is applied to intergrowth of mica crystals.

3.20 'V'-Cuts or Figure Cuts — Edge cuts converging towards the central area of the mica piece.

3.21 Waves — Alternate elevations and depressions which may be classified as slight, medium or heavy.

3.22 Wedge — A piece of mica that, on splitting, yields pieces thicker at one end than at the other.

INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

Base Units

Quantity	*Unit*	*Symbol*
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Supplementary Units

Quantity	*Unit*	*Symbol*
Plane angle	radian	rad
Solid angle	steradian	sr

Derived Units

Quantity	*Unit*	*Symbol*	*Definition*
Force	newton	N	1 N = 1 kg.m/s^2
Energy	joule	J	1 J = 1 N.m
Power	watt	W	1 W = 1 J/s
Flux	weber	Wb	1 Wb = 1 V.s
Flux density	tesla	T	1 T = 1 Wb/m^2
Frequency	hertz	Hz	1 Hz = 1 c/s (s^{-1})
Electric conductance	siemens	S	1 S = 1 A/V
Electromotive force	volt	V	1 V = 1 W/A
Pressure, stress	pascal	Pa	1 Pa = 1 N/m2

INDIAN STANDARDS INSTITUTION
Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002
Telephone : 26 60 21, 27 01 31 **Telegrams : Manaksanstha**

Regional Offices:

		Telephone
Western : Novelty Chambers, Grant Road	BOMBAY 400007	37 97 29
Eastern : 5 Chowringhee Approach	CALCUTTA 700072	27 50 90
Southern : C. I. T. Campus, Adyar	MADRAS 600020	41 24 42

Branch Offices:

'Pushpak', Nurmohamed Shaikh Marg, Khanpur	AHMADABAD 380001	2 03 91
'F' Block, Unity Bldg, Narasimharaja Square	BANGALORE 560002	2 76 49
Gangotri Complex, Bhadbhada Road, T.T. Nagar	BHOPAL 462003	6 27 16
22E Kalpana Area	BHUBANESHWAR 751014	5 36 27
Ahimsa Bldg. SCO 82-83, Sector 17C	CHANDIGARH 160017	2 83 20
5-8-56C L. N. Gupta Marg	HYDERABAD 500001	22 10 83
D-277 Todarmal Marg, Banipark	JAIPUR 302006	6 98 32
117/418B Sarvodaya Nagar	KANPUR 208005	8 12 72
Patliputra Industrial Estate	PATNA 800013	6 28 08
Hantex Bldg (2nd Floor), Rly Station Road	TRIVANDRUM 695001	32 27

Printed at Printrade, New Delhi, India